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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KERR, KATHLEEN M

ART UNIT	PAPER NUMBER
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1652

DATE MAILED: 07/21/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/903,771

Examin r

Kathleen M Kerr

Applicant(s)

MOECKEL ET AL.

Art Unit

1652

-- The MAILING DATE of this c mmunication appears on th cover sh et with the correspondence address --

Period f r R ply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-39 is/are pending in the application.
- 4a) Of the above claim(s) 20-36 and 39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-8,10 and 11 is/are rejected.
- 7) ☒ Claim(s) 1,3,4,12-19,37 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *See Continuation Sheet*.

Continuation of Attachment(s) 6). Other: page 21 of specification, highlighted.

DETAILED ACTION

Application Status

1. In response to the previous Office action, a non-Final rejection (Paper No. 10, mailed on December 27, 2003), Applicants filed a response and amendment received on April 28, 2003 (Paper No. 12). Said amendment cancelled Claims 2 and 9 and amended Claims 1, 3, 5-7, 10, and 16-19. Thus, Claims 1, 3-8, and 10-39 are pending in the instant Office action. Claims 20-36 and 39 remain withdrawn from consideration as non-elected inventions. Claims 1, 3-8, 10-19, 37, and 38 will be examined herein.

Priority

2. As previously noted, the instant application is granted the benefit of priority for the foreign application 10039043.9 filed in Germany on August 10, 2000. In response to the previous Office action, Applicants filed a translation of the foreign priority document.

The Examiner notes that all claims examined in the instant Office action have support in the foreign priority document EXCEPT Claim 8. The only support in the instant application for the hybridization conditions is found in originally filed claims which are different than those in the foreign priority document. Thus, Claims 1, 3-7, 10-19, 37, and 38 have priority to August 10, 2000 and Claim 8 has priority to July 13, 2001.

Withdrawn - Objections to the Specification

3. Previous objection to the Abstract for not completely describing the disclosed subject matter is withdrawn by virtue of Applicants' amendment.

Maintained - Objections to the Specification

4. Previous objection to the specification for containing a sequence in the sequence listing that is not mentioned in the specification, that is SEQ ID NO:3, is maintained. Applicants argue that on page 21, lines 8-9, a description of SEQ ID NO:3 is found. That is not the case. Attached is page 21 as found in the original application papers. The Examiner has highlighted lines 8-9. Correction and/or clarification are required.

Withdrawn - Claim Objections

5. Previous objection to Claims 2, 5-7, and 9 under 37 C.F.R. § 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim is withdrawn by virtue of Applicant's amendment.

New or Maintained - Claim Objections

6. Previous objection to Claims 4, 8, 10, and 11 under 37 C.F.R. § 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim is maintained. Applicants' arguments have been fully considered but are not deemed persuasive for the following reasons. Applicants argue that Claim 5 is the broadest claim that all claims depend from Claim 5; so all claims must further limit the subject matter. This is not the case. As previously noted, "Claim 4 attempts to wholly alter the scope from a coding sequence of SEQ ID NO:1 to a non-coding sequence." Also as previously noted, Claim 8 broadens the scope to encode more than just an exact sequence (SEQ ID NO:1). Claim 10 broadens the scope, by virtue of its comprising language, to any structure having at least 15 consecutive nucleotides (less limiting) when the parent claim requires the full-length sequence (more limiting). Claim

11, as depending from Claim 10, has the same problem. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 8 and 10 (and 11) will be examined as if they depend directly from the broadest claim, Claim 5. For Claim 4 to be proper, it must be rewritten as an independent claim.

7. (New) Claims 1, 3, 12-19, 37, and 38 are objected to as depending from rejected claims.

Withdrawn - Claim Rejections - 35 U.S.C. § 112

8. Previous rejection of Claims 16-19 under 35 U.S.C. § 112, second paragraph, as being indefinite for the term “*Coryneform*” is withdrawn by virtue of Applicants’ amendment.

New or Maintained - Claim Rejections - 35 U.S.C. § 112

9. Previous rejection of Claim 8 under 35 U.S.C. § 112, second paragraph, as being indefinite for the washing conditions for stringent hybridization, is maintained. Applicants’ arguments have been fully considered but are not deemed persuasive. Applicants argue that one of skill in the art would recognize the appropriate time for washing as required in the claim.

While the Examiner does not disagree that washing during hybridization protocols is common in the art, in the instant case, the wash conditions are used to define the scope of the claim. Just as the term “stringent conditions” means different things to different skilled artisans, so does an appropriate timing to provide such stringent conditions. To clearly define the metes and bounds of the claim, a wash time is required. Applicants argue that the Office’s position is “in opposite to that recognized in the related technical field” and that, due to this, documentation of the

Office's position is required. The Examiner disagrees. The rejection is based on the fact that the art does not clearly define a wash time and/or stringent wash conditions. The Examiner suggests introducing a wash time into the claim from one of the many references cited, as Applicants note in their rebuttal of the rejection.

10. (New) Claims 5-8, 10, and 11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The "wherein" clause is unclear as to whether it refers to the claimed "polynucleotide" as written in line 1, of the polynucleotide comprising SEQ ID NO:1 as written in line 2. The Examiner suggests the following language for clarity:

---An isolated polynucleotide which is at least 70% identical to a nucleic acid sequence comprising SEQ ID NO:1, wherein said polynucleotide encodes a protein having LuxR transcriptional activation activity.---

11. Previous rejection of Claims 5-8 under 35 U.S.C. § 112, first paragraph, written description, is maintained. Applicant's arguments have been fully considered but are not deemed persuasive. Applicants' argue that the functional language in Claim 5 obviates the rejection. However, in Claim 5 as amended, it is unclear if the function describes the claimed polynucleotide or the polynucleotide comprising the nucleic acid sequence of SEQ ID NO:1 (see rejection under 35 U.S.C. § 112, second paragraph, above). Due to the unclear antecedent basis for the function, the rejection cannot be withdrawn. Clarification as suggested below would also obviate the instant rejection. A portion of the rejection is reiterated below for clarity.

"The instant specification discloses polynucleotides encoding polypeptides with at least 70% sequence identity to SEQ ID NO:1. Applicants have fully described the genus relating to said SEQ ID NO with both sequence identity limitations and functional limitations (i.e., having LuxR transcriptional activation

activity). However, the genus of the instant claims also contains polynucleotides within the sequence identity limitations, but having different function. Applicants have not fully described a genus that has sequence identity limitations in the absence of functional limitations."

12. (New) Claims 10 and 11 are rejected under 35 U.S.C. § 112, first paragraph, written description, for the reasons maintained above for Claims 5-8. The entire rejection was previously set forth in Paper No. 10.

13. (New) Claims 5-8, 10 and 11 are rejected under 35 U.S.C. § 112, first paragraph, scope of enablement, because the specification, while being enabling for any polynucleotide that encodes LuxR (SEQ ID NO:2), does not reasonably provide enablement for polynucleotides having as little as 70% identity to SEQ ID NO:1. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. To make the claims to the full extent of their scope would require undue experimentation.

The factors to be considered in determining whether undue experimentation is required are summarized In re Wands 858 F.2d 731, 8 USPQ2d 1400 (Fed. Cir, 1988). The Court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.'" (Wands, 8 USPQ2d 1404). Clearly, enablement of a claimed invention cannot be predicated on the basis of quantity of experimentation required to make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (Wands, 8 USPQ2d 1404). The factors to be considered

in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. While all of these factors are considered, a sufficient amount for a *prima facie* case is discussed below.

The instant specification describes genomic screening of the *C. glutamicum* genome. An open reading frame (ORF) is identified. It must be assumed that this ORF was named LuxR according to some similarity that was identified with known LuxR family transcriptional activators; however, no such similarity is described in the specification. No description of LuxR family proteins, even in the most generic sense, is found. No examples of other LuxR family proteins are found. Applicants present no guidance or working examples of the use of polynucleotides that have such low sequence identity with respect to SEQ ID NO:1. The nature of the invention is such that the DNA encodes a functional protein, a LuxR family transcriptional activator whose attenuation enables host cells to produce more lysine; and with such a great deviation from the known sequence, the predictability of functionality becomes extremely low. Such enormous breadth and unpredictability renders the instant claims not enabled to the full extent of their scope without undue experimentation.

Withdrawn - Claim Rejections - 35 U.S.C. § 102

14. Previous rejection of Claims 1, 2, 5-7, 10-12, 14, 16, 19, and 37 under 35 U.S.C. § 102(a) as being anticipated by Pompejus *et al.* (WO 01/00842) is withdrawn by virtue of Applicants' filing of a certified translation of their priority document. Thus, Claims 1, 2, 5-7, 10-12, 14, 16,

19, and 37 are granted priority to August 10, 2000, which pre-dates the international publication date of Pompejus *et al.*

15. Previous rejection of Claims 1, 2, 5-7, 10-12, 14, 16, 19, and 37 under 35 U.S.C. § 102(a) as being anticipated by Nakagawa *et al.* (EP 1108790) is withdrawn by virtue of Applicants' filing of a certified translation of their priority document. Thus, Claims 1, 2, 5-7, 10-12, 14, 16, 19, and 37 are granted priority to August 10, 2000, which pre-dates the international publication date of Nakagawa *et al.*

Maintained - Claim Rejections - 35 U.S.C. § 102

16. Previous rejection of Claims 8 and 10 under 35 U.S.C. § 102(b) as being anticipated by Schmitt is maintained. Applicants have presented no arguments. Since the instant Office action is non-final, the rejection will be set forth again herein.

Claims 8 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Schmitt (see IDS) The instant claims are drawn to polynucleotides that comprise at least 15 consecutive nucleotides of SEQ ID NO:1 and that hybridize to SEQ ID NO:1.

Schmitt teaches a *C. diphtheriae* sequence (2021 bp DNA) of histidine kinase that comprises a 22-mer fragment of SEQ ID NO:1 (see previously attached alignment). This sequence will hybridize to SEQ ID NO:1 by virtue of the hybridization conditions in Claim 8 that are unclear as noted above. Moreover, the functional requirement of the overall polynucleotide is also unclear as noted above.

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17. Previous rejection of Claim 8 under 35 U.S.C. § 102(a) as being anticipated by Pompejus *et al.* (WO 01/00842) is maintained. Applicants' arguments have been fully considered but are not deemed persuasive. Applicants argue that the filing of a certified translation of the priority document in the instant application entitles Claim 8 to a priority date of August 10, 2000. This is not the case. As noted above in the priority section, the hybridization conditions that limit Claim 8 do not have support in the foreign priority document. Thus, Claim 8 can only be afforded the date of the instant application, July 13, 2001, which does not pre-date the international publication date of Pompejus *et al.*

18. Previous rejection of Claim 8 under 35 U.S.C. § 102(a) as being anticipated by Nakagawa *et al.* (EP 1108790) is maintained. Applicants' arguments have been fully considered but are not deemed persuasive. Applicants argue that the filing of a certified translation of the priority document in the instant application entitles Claim 8 to a priority date of August 10, 2000. This is not the case. As noted above in the priority section, the hybridization conditions that limit Claim 8 do not have support in the foreign priority document. Thus, Claim 8 can only be afforded the date of the instant application, July 13, 2001, which does not pre-date the international publication date of Nakagawa *et al.*

Summary of Pending Issues

19. The following is a summary of the issues pending in the instant application:
- a) The specification stand objected to for containing a sequence in the sequence listing that is not mentioned in the specification, that is SEQ ID NO:3.
 - b) Claims 4, 8, 10, and 11 stand objected to under 37 C.F.R. § 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.
 - c) Claims 1, 3, 12-19, 37, and 38 stand objected to as depending from rejected claims.

- d) Claim 8 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the washing conditions for stringent hybridization.
- e) Claims 5-8, 10, and 11 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the "wherein" clause that includes the function.
- f) Claims 5-8, 10, and 11 stand rejected under 35 U.S.C. § 112, first paragraph, written description.
- g) Claims 5-8, 10 and 11 stand rejected under 35 U.S.C. § 112, first paragraph, scope of enablement.
- h) Claims 8 and 10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Schmitt.
- i) Claim 8 stands rejected under 35 U.S.C. § 102(a) as being anticipated by Pompejus *et al.* (WO 01/00842).
- j) Claim 8 stands rejected under 35 U.S.C. § 102(a) as being anticipated by Nakagawa *et al.* (EP 1108790).

Allowable Subject Matter

20. As previously noted, the full-length SEQ ID NO:1, which encompasses coding and non-coding portions in and around the nucleotide sequence of LuxR in *C. glutamicum*, is free of the prior art.

Conclusion

21. Claims 1, 3, 4, 12-19, 37, and 38 are objected to. Claims 5-8, 10, and 11 are rejected for the reasons identified in the numbered sections of this Office action. Applicants must respond to the objections/rejections in each of the numbered sections in this Office action to be fully responsive in prosecution. The instant Office action is non-Final due to the new scope of enablement rejection set forth herein. Claims 3, 13 and 15, previously allowed, were amended in Paper No. 12; said amendment resulted in the new objections to said claims herein.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen M Kerr whose telephone number is (703) 305-1229. The examiner can normally be reached on Monday through Friday, from 8:30am to 5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathupura Achutamurthy can be reached on (703) 308-3804. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

KMK

July 18, 2003

A handwritten signature in cursive script, appearing to read 'KMK', is written over the typed name and date.